

A SUPPLEMENT TO THE BOMBARDIER BEETLES
OF NORTH AND MIDDLE AMERICA:
NEW RECORDS FOR MIDDLE AMERICA
(COLEOPTERA: CARABIDAE)

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INTRODUCTION

Since my revision of the bombardier beetles (1970), additional specimens have come to my attention. Many of these were collected in Central America, and it is the purpose of this paper to report on these in preparation for a forthcoming Central American faunal study. In this material, there are 5 species not previously recorded from Central America, although 4 of them were known from Mexico. The fifth was known only from South America. I have not discussed this latter species before. It is here redescribed and illustrated. New locality records are given for 3 other previously recorded species. A new synonymy is noted for a widely distributed North, Middle, and South American species. The arrangement of species here conforms to that proposed before (Erwin, 1970). *Brachinus bilineatus* Castelnau is here determined to be phylogenetically a member of the *lateralis* group (Erwin 1970:73). My earlier key (1970) is modified in order to accommodate *B. bilineatus*.

Key to North and Middle American Striped *Brachinus*

- 3(1'). Elytron with ferrugineous sutural or discal stripe, contrasting strongly with the otherwise darkly colored disc; elytral epipleura pale 4a
 3'. Elytra concolorous; epipleura pale or dark 5
 4a(3). Elytron with ferrugineous stripe along suture only 4b
 4a'. Elytron with diagonal ferrugineous stripe extended from humerus to medial apex *B. bilineatus* Castelnau
 4b(4a). Legs (at least tibiae) pale, with dark knees; palpi pale; elytra other than stripe usually greenish
 *B. cinctipennis* Chevrolat
 4b'. Legs totally black; palpi infuscated to black; elytra other than stripe usually bright blue *B. cibolensis* Erwin

Brachinus geniculatus Dejean

Brachinus geniculatus Dejean 1831:428. Lectotype, here selected, a male, in MHNP! Type locality: "environs de Carthagène" that is, Cartagena, Colombia.

Brachinus rhytiderus Chaudoir 1876:76. NEW SYNONYMY. My use of this name in 1970 was a result of not having seen the type of *B. geniculatus* Dejean. Description.—See Erwin, 1970.

NOTE: This species was recorded previously from Central America, but the following localities provide additional site records. The range, as known now, extends from Texas south to at least northern Colombia.

ADDITIONAL DISTRIBUTION: COSTA RICA: (Irazu) USNM: (La Caja) USNM; (Navarro Farm) USNM: (San Jose) USNM. GUATEMALA: (Amatitlan) USNM; (Chimaltenango) USNM. NICARAGUA: (Managua City) USNM. EL SALVADOR: (San Salvador) USNM. PANAMA-CANAL ZONE: (La Chorrera) USNM; (Pipeline Road at Rio Agua Salud) USNM.

Brachinus sallei Chaudoir

(See Erwin, 1972, for discussion of the type specimen)

NOTE: This species was previously recorded only from Mexico at localities in Campeche, Chiapas, Quintana Roo, San Luis Potosi, Tabasco, and Veracruz.

ADDITIONAL DISTRIBUTION: GUATEMALA: (Cayuga) USNM.

Brachinus bilineatus Castelnau

(Fig. 1, 2, 3, 4)

Brachinus bilineatus Castelnau 1835:59. Lectotype, here selected, a male, in Paris Mus. Nat. Hist. *Type locality*: Cayenne, French Guiana.

Brachinus insignis Brullé 1837:21. Synonymized by Chaudoir 1876:86. *Type locality*: Santa Fe Province: Rio de Corrientes, Argentina.

Brachinus obliquus Brullé 1837:21. Synonymized by Chaudoir 1876:86. *Type locality*: Santa Fe Province: Rio de Corrientes, Argentina.

DIAGNOSTIC COMBINATION: The longitudinally diagonal ferrugineous stripe on each elytron is unique to members of this species.

DESCRIPTION: Medium-sized, 9.0 to 11.5mm.

Color: Meso- and metasternum and abdomen at least at sides infuscated, middle usually more rufous; forebody and elytral stripes ferrugineous; appendages variable, except infuscated antennal articles 3 to 11.

Microsculpture as described for genus (Erwin, 1970).

Macrosculpture. Frons laterally and pronotum in lateral channels transversely but shallowly rugose.

Head. Frontal furrows shallowly impressed. Antennal scape robust, slightly swollen apically. Ligula with sclerotized center area ellipsoid-convex with 2 apical setae. Mentum and submentum without accessory setae.

Prothorax. Pronotum (Fig. 4) slightly convex, slightly impressed along longitudinal center line, sides slightly reflexed. Proepipleura glabrous. Proepisterna glabrous. Anterior tibia with anterior surface longitudinally microstriate.

Pterothorax. Elytra moderately short, widened greatly at apical third, feeble costate. Humeri narrow, almost square. Costae and intervals smooth, pubescent laterad of ferrugineous stripes and near scutellum. Hind wings fully developed; metasternum fully developed.

Abdomen as described for genus (Erwin 1970).

Genitalia. Male (Fig. 1-3). Median lobe with plane of shaft not rotated from plane of basal bend. Basal bend short. Shaft slightly swollen medially. Apex of shaft asymmetric, rounded and bent dorsad. Ligule long, bilobed at apex. Virga (Fig. 1, 2). Female not dissected.

VARIATION: Specimens from Panama have testaceous palpi and legs, except for the infuscated femoral apicies and tibial bases. At the other end of the geographic range, in Argentina, specimens have nearly all black legs and infuscated palpi. The type, from Cayenne, has a condition intermediate to the above color extremes. Further, the pronotum in northern specimens is rather strongly constricted in the basal half, while Argentine specimens are much less constricted. The Cayenne specimen is also intermediate in this character state.

FLIGHT: The wings are fully developed.

ETYMOLOGY: Latin, *bi lineatus*, referring to the 2 elytral stripes.

LIFE HISTORY: All specimens seen were collected in June; none were teneral.

DISTRIBUTION: The range of this species extends from Panama just north of the Canal Zone to northeastern Argentina.

Brachinus chalchihuiticue Erwin

NOTE: This species was previously recorded only from Mexico at localities in Guerrero, Nayarit, and Sinaloa.

ADDITIONAL DISTRIBUTION: COSTA RICA: (Hamburg Farm at Reventazon) USNM; (Sixaola River) USNM. GUATEMALA: (Cayuaga) USNM. PANAMA: (Trinidad River) USNM.

Brachinus arboreus Chevrolat

NOTE: This species was previously recorded from Mexico at localities in Jalisco, Morelos, Sinaloa, and Vera Cruz, and from northernmost Honduras.

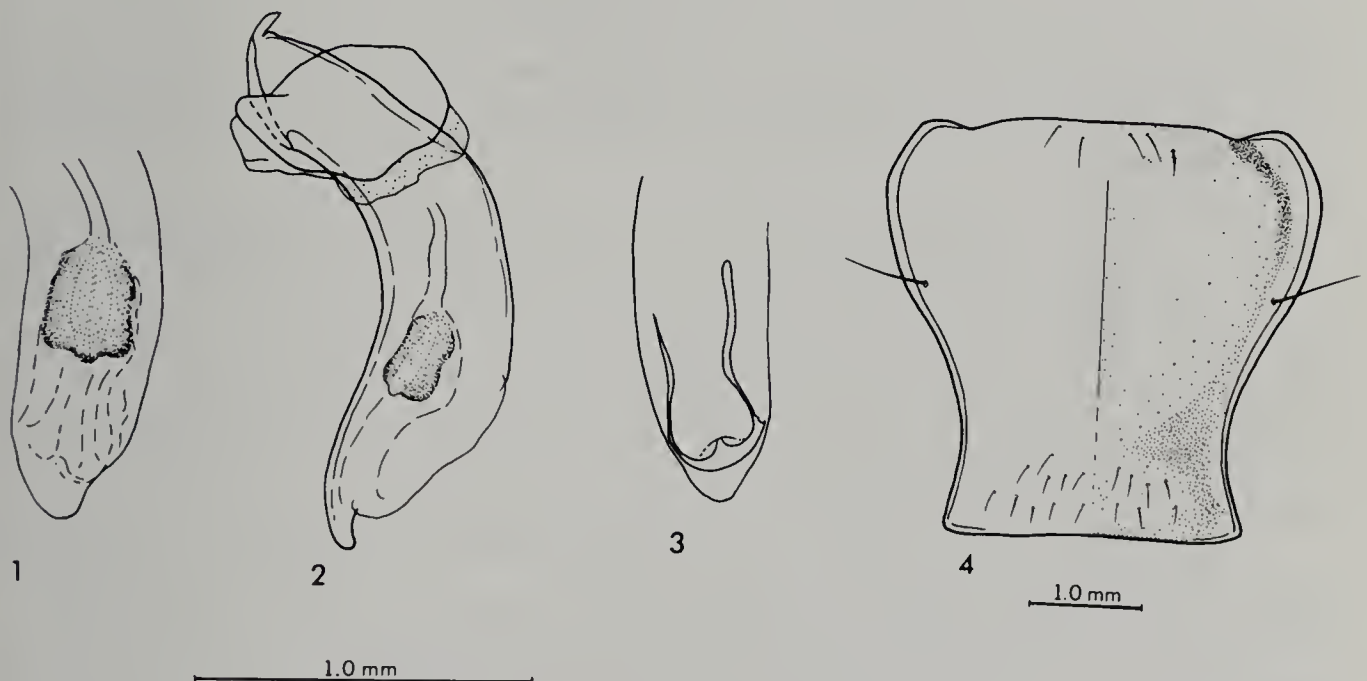


Fig. 1-4. *Brachinus bilineatus* Castelnau, Trinidad River, Panama: 1) ventral aspect, male genitalia, 2) lateral aspect, male genitalia, 3) dorsal aspect, male genitalia, 4) pronotum, dorsal aspect.

ADDITIONAL DISTRIBUTION: COSTA RICA: (Bebedero, Guanacaste) USNM; (La Caja) USNM; (Taboga Agri. Expt. Sta.-swamp) USNM.

Brachinus costipennis Motschulsky

NOTE: This species was previously recorded from Utah and northern California south to Chiapas, Mexico.

ADDITIONAL DISTRIBUTION: GUATEMALA: (Guatemala City) USNM.

Brachinus mexicanus Dejean

NOTE: Although previously recorded from Guatemala, no specific area was mentioned on labels I saw.

ADDITIONAL DISTRIBUTION: GUATEMALA: (Guatemala City) USNM.

Pheropsophus aequinoctialis (Linné)

(See Erwin 1971 for discussion of names in the subtribe Pheropsophina)

NOTE: Previously I saw no specimens of this species from Central America or Mexico, although Bates (1883) recorded it from the Yucatan Peninsula in Mexico.

ADDITIONAL DISTRIBUTION: COSTA RICA: (Hamburg Farm at Reventazon) USNM; (Palo Seco) USNM; (Turrialba) USNM. NICARAGUA: (Jinotepe) USNM. PANAMA-CANAL ZONE: (Boqueron River) USNM; (Darien) USNM.

LITERATURE CITED

- BATES, H. W. 1883. *Biologia Centrali-Americana*, Insecta, Coleoptera: Carabidae, Cicindelidae 1 (Suppl. 1):153-256.
- BRULLÉ, G. A. 1838. Insectes de l'Amerique meridionale recueillis par Alcide d'Orbigny. *In Voyage dans l'Amerique meridionale . . . par Alcide d'Orbigny*. Paris. p. 17-56. (The date of this publication was determined from Sherborn and Woodward (1901) *Ann. Mag. Nat. Hist.* (Ser. 7) 7:389.)
- CASTELNAU (DE LAPORTE), F. L. N. C. 1835. *Études entomologiques, ou description d'insects nouveaux, et observations sur la synonymie*. Paris. p. 94-159.
- CHAUDOIR, M. DE. 1876. Monographie de brachynides. *Ann. Soc. Ent. Belgique* 19:11-104.
- DEJEAN, P. F. M. A. 1831. *Species general des coleopteres de la collection de M. le comte Dejean*. Paris. 5:1-883.
- Erwin, T. L. 1970. A reclassification of bombardier beetles and a taxonomic revision of the North and Middle American species (Carabidae: Brachinida). *Quaestiones Ent.* 6:4-215.
- ERWIN, T. L. 1971. Notes and corrections to a reclassification of bombardier beetles (Carabidae: Brachinida). *Quaestiones Ent.* 7:281.
- ERWIN, T. L. 1972. The lost type of *Brachinus sallei* Chaudoir (Coleoptera: Carabidae). *Pan-Pacific Ent.* 48(1):63-64.

